

Serial No. 10/070,084  
 Docket No. PU3517USw  
 Reply to Office Action of December 16, 2004

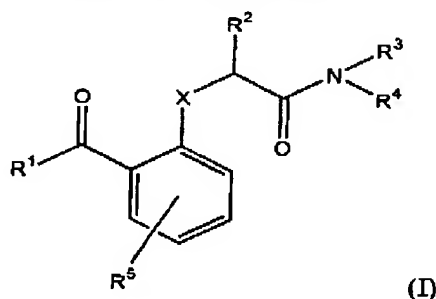
### Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

### Listing of Claims:

Claim 1 (canceled)

Claim 2 (currently amended) A compound of formula (I)



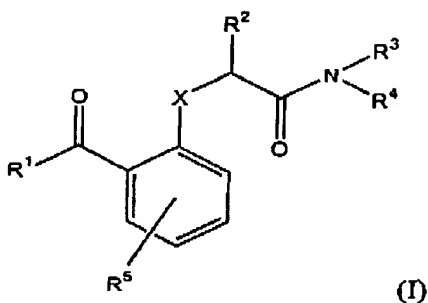
wherein X is O; R<sup>1</sup> is C<sub>6-14</sub>aryl substituted with one or more substituents selected from the group consisting of halogen, -CF<sub>3</sub>, C<sub>1-8</sub>alkyl, -CN, -SR<sup>6</sup>, -S(O)<sub>2</sub>R<sup>6</sup>; or heterocycle, optionally substituted with one or more substituents selected from the group consisting of C<sub>1-8</sub>alkyl, -CN, and C<sub>6-14</sub>arylC<sub>1-8</sub>alkyl; R<sup>6</sup> is C<sub>1-8</sub>alkyl, optionally substituted with halogen; R<sup>7</sup> is C<sub>1-8</sub>alkyl optionally substituted with ~~one or more substituents selected from the group consisting of~~ hydroxy; -NH<sub>2</sub>; or heterocycle; R<sup>2</sup> is hydrogen; R<sup>3</sup> is hydrogen or C<sub>1-8</sub>alkyl; R<sup>4</sup> is heterocycle, optionally substituted with one or more substituents selected from the group consisting of oxo, halogen, C<sub>1-8</sub>alkyl, -OR<sup>11</sup> and -SR<sup>10</sup>N(R<sup>10</sup>)<sub>2</sub>, S(O)<sub>2</sub>NR<sup>8</sup>R<sup>9</sup>; or C<sub>6-14</sub>aryl substituted with one or more substituents selected from the group consisting of hydroxy, halogen, -CF<sub>3</sub>, C<sub>1-8</sub>alkyl, hydroxyC<sub>1-8</sub>alkyl, -CN, -NO<sub>2</sub>, -C(O)NH<sub>2</sub>, -S(O)R<sup>7</sup>, -S(O)<sub>2</sub>R<sup>7</sup>, -S(O)<sub>2</sub>NR<sup>8</sup>R<sup>9</sup>, -OR<sup>11</sup>, -C(O)NR<sup>11</sup>, -C(O)OR<sup>11</sup>, -NR<sup>11</sup>, -NC(O)R<sup>11</sup>, and heterocycle which may be optionally substituted with one or more substituents selected from the group consisting of oxo, C<sub>1-8</sub>alkyl and heterocycleC<sub>1-8</sub>alkyl; R<sup>8</sup> and R<sup>9</sup> are the same or different and are selected from the group consisting of hydrogen, C<sub>1-8</sub>alkyl, C<sub>1-8</sub>alkylheterocycle, heterocycle, and C<sub>3-6</sub>cycloalkyl; R<sup>10</sup> is C<sub>1-8</sub>alkyl; R<sup>11</sup> is C<sub>1-8</sub>alkyl, optionally substituted with -SO<sub>2</sub>NR<sup>8</sup>R<sup>9</sup>; and R<sup>5</sup> is halogen or -NO<sub>2</sub>; or a pharmaceutically acceptable salt thereof.

Claim 3 (previously presented) A compound of formula (I)

Serial No. 10/070,084  
 Docket No. PU3517USw  
 Reply to Office Action of December 16, 2004

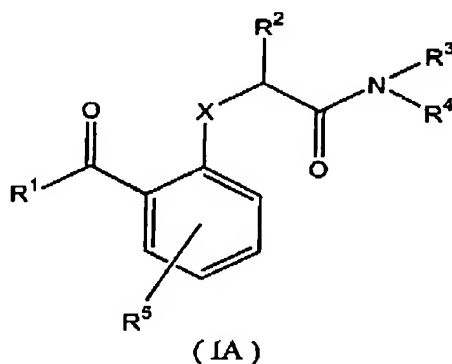
alkyl,  $-\text{NO}_2$ ,  $-\text{NH}_2$ ,  $\text{C}_{1-8}$ alkylamino,  $\text{CF}_3$ , or alkoxy; or a pharmaceutically acceptable salt thereof.

Claim 5 (previously presented) A compound of formula (I)



wherein X is O,  $\text{R}^1$  is  $\text{C}_{6-14}$ aryl substituted with one or more substituents selected from the group consisting of halogen,  $-\text{CF}_3$ ,  $\text{C}_{1-8}$ alkyl, and  $-\text{CN}$ ;  $\text{R}^2$  and  $\text{R}^3$  are hydrogen;  $\text{R}^4$  is  $\text{C}_{6-14}$ aryl substituted with one or more substituents selected from the group consisting of halogen,  $\text{C}_{1-8}$ alkyl,  $-\text{CN}$ ,  $-\text{NO}_2$ ,  $-\text{S}(\text{O})\text{R}^7$ ,  $-\text{S}(\text{O})_2\text{R}^7$ ,  $-\text{NS}(\text{O})_2\text{R}^7$ , wherein  $\text{R}^7$  is  $-\text{NH}_2$ ; and  $\text{R}^5$  is halogen; or a pharmaceutically acceptable salt thereof.

Claim 6 (previously presented) A compound of formula (IA)



wherein:

X is C, O, or N;

Serial No. 10/070,084  
Docket No. PU3517USW  
Reply to Office Action of December 16, 2004

R<sup>1</sup> is C<sub>6-14</sub>aryl which may be optionally substituted with one or more substituents selected from the group consisting of halogen, -CF<sub>3</sub>, C<sub>1-8</sub>alkyl, C<sub>1-8</sub>alkylamino, alkoxy, C<sub>3-6</sub>cycloalkyl, C<sub>2-6</sub>alkenyl, C<sub>6-14</sub>arylC<sub>2-6</sub>alkenyl, -CN, -NO<sub>2</sub>, -NH<sub>2</sub>, -SR<sup>6</sup>, -S(O)<sub>2</sub>R<sup>6</sup>, -S(O)R<sup>7</sup>, -S(O)<sub>2</sub>R<sup>7</sup>, -C(O)R<sup>7</sup>, C<sub>2-6</sub>alkenyl which may be optionally substituted with a substituent selected from the group consisting of hydroxy, halogen, aryl, and heterocycle and C<sub>2-6</sub>alkynyl which may be optionally substituted with a substituent selected from the group consisting of hydroxy, halogen, aryl, C<sub>3-6</sub>cycloalkyl, and heterocycle;

R<sup>6</sup> is C<sub>1-8</sub>alkyl optionally substituted with one or more substituents selected from the group consisting of hydroxyl, halogen, -CF<sub>3</sub>, aryl, and heterocycle;

R<sup>7</sup> is C<sub>1-8</sub>alkyl, optionally substituted with one or more substituents selected from the group consisting of hydroxy, halogen, aryl, C<sub>3-6</sub>cycloalkyl and heterocycle; -NH<sub>2</sub>; or heterocycle;

R<sup>2</sup> is hydrogen, halogen, or C<sub>1-8</sub>alkyl;

R<sup>3</sup> is hydrogen;

R<sup>4</sup> is C<sub>6-14</sub>aryl substituted with one or more substituents selected from the group consisting of hydroxy, halogen, -CF<sub>3</sub>, C<sub>1-8</sub>alkyl, hydroxyc<sub>1-8</sub>alkyl, -CN, -NO<sub>2</sub>, C<sub>1-8</sub>alkylamino, heterocycleC<sub>1-8</sub>alkyl, -C(O)NH<sub>2</sub>, -S(O)R<sup>7</sup>, -S(O)<sub>2</sub>R<sup>7</sup>, -C(O)R<sup>7</sup>, -NS(O)<sub>2</sub>R<sup>7</sup>, -S(O)<sub>2</sub>NR<sup>8</sup>R<sup>9</sup>, -S(O)<sub>2</sub>NHR<sup>11</sup>, -S(O)<sub>2</sub>R<sup>11</sup>, -S(O)<sub>2</sub>NR<sup>7</sup>COR<sup>11</sup>, -S(O)<sub>2</sub>NHCOR<sup>11</sup>, -S(O)<sub>2</sub>[COR<sup>11</sup>]<sub>n</sub> wherein n is 1, 2, or 3, -OR<sup>11</sup>, -OR<sup>11</sup>OR<sup>11</sup>, -C(O)R<sup>11</sup>, -C(O)NR<sup>11</sup>, -C(O)OR<sup>11</sup>, -NR<sup>11</sup>, -NC(O)R<sup>11</sup>,

heterocycleC<sub>2-6</sub>alkenyl, heterocycle which may be optionally substituted with one or more substituents selected from the group consisting of oxo, C<sub>1-8</sub>alkyl, and C(O)OR<sup>11</sup>, and C<sub>1-8</sub>alkyl which may be optionally substituted with one or more substituents selected from the group consisting of -CN and heterocycle, optionally substituted with -C(O)R<sup>11</sup>;

R<sup>8</sup> and R<sup>9</sup> are independently selected from the group consisting of hydrogen, C<sub>3-6</sub>cycloalkyl, C<sub>1-8</sub>alkyl optionally substituted with one or more substituents selected from the group consisting of oxo, heterocycle, CN and C<sub>6-14</sub>aryl optionally substituted with alkoxy, C<sub>1-8</sub>alkylamino, C<sub>1-8</sub>alkylheterocycle, heterocycle, heterocycleC<sub>1-8</sub>alkyl, C<sub>3-6</sub>cycloalkylC<sub>1-8</sub>alkyl, and C<sub>3-6</sub>cycloalkyl;

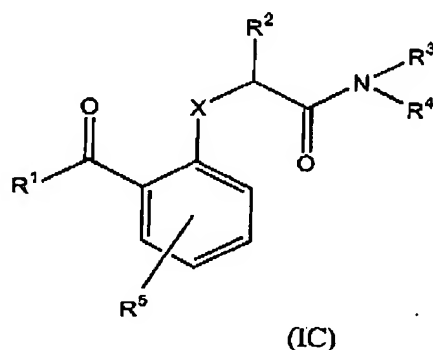
R<sup>11</sup> is C<sub>1-8</sub>alkyl, optionally substituted with one or more substituents selected from the group consisting of hydrogen, hydroxy, halogen, C<sub>1-8</sub>alkyl, C<sub>3-6</sub>cycloalkyl, alkoxy, -S(O)<sub>2</sub>NR<sup>8</sup>R<sup>9</sup>, NCONH<sub>2</sub>, and heterocycle optionally substituted with one or more substituents selected from the group consisting of oxo, hydroxy, and C<sub>1-8</sub>alkyl; heterocycle optionally substituted with heterocycleC<sub>1-8</sub>alkyl; or C<sub>6-14</sub>aryl optionally substituted with alkoxy;

R<sup>5</sup> is hydrogen, halogen, C<sub>1-8</sub>alkyl, -NO<sub>2</sub>, -NH<sub>2</sub>, C<sub>1-8</sub>alkylamino, CF<sub>3</sub>, or alkoxy;

Serial No. 10/070,084  
 Docket No. PU3517USw  
 Reply to Office Action of December 16, 2004

wherein X is O; R<sup>1</sup> is C<sub>6-14</sub>aryl substituted with one or more substituents selected from the group consisting of halogen, -CF<sub>3</sub>, and -CN; R<sup>2</sup> is hydrogen; R<sup>3</sup> is hydrogen; R<sup>4</sup> is heterocycle; and R<sup>5</sup> is halogen; or a pharmaceutically acceptable salt thereof.

Claim 10 (previously presented) A compound of formula (IC)



wherein:

X is C, O, or N;

R<sup>1</sup> is heterocycle, optionally substituted with one or more substituents selected from the group consisting of C<sub>1-8</sub>alkyl, halogen, -CN, C<sub>6-14</sub>arylC<sub>1-8</sub>alkyl and heterocycle;

R<sup>2</sup> is hydrogen, halogen, or C<sub>1-8</sub>alkyl;

R<sup>3</sup> is hydrogen;

R<sup>4</sup> is C<sub>6-14</sub>aryl substituted with one or more substituents selected from the group consisting of hydroxy, halogen, -CF<sub>3</sub>, C<sub>1-8</sub>alkyl, hydroxyC<sub>1-8</sub>alkyl, -CN, -NO<sub>2</sub>, C<sub>1-8</sub>alkylamino, heterocycleC<sub>1-8</sub>alkyl, -C(O)NH<sub>2</sub>, -S(O)R<sup>7</sup>, -S(O)<sub>2</sub>R<sup>7</sup>, -C(O)R<sup>7</sup>, -NS(O)<sub>2</sub>R<sup>7</sup>, -S(O)<sub>2</sub>NR<sup>8</sup>R<sup>9</sup>, -S(O)<sub>2</sub>NHR<sup>11</sup>, -S(O)<sub>2</sub>R<sup>11</sup>, -S(O)<sub>2</sub>NR<sup>7</sup>COR<sup>11</sup>, -S(O)<sub>2</sub>NHCOR<sup>11</sup>, -S(O)<sub>2</sub>[COR<sup>11</sup>]<sub>n</sub> wherein n is 1, 2, or 3, -OR<sup>11</sup>, -OR<sup>11</sup>OR<sup>11</sup>, -C(O)R<sup>11</sup>, -C(O)NR<sup>11</sup>, -C(O)OR<sup>11</sup>, -NR<sup>11</sup>, -NC(O)R<sup>11</sup>, heterocycleC<sub>2-6</sub>alkenyl, heterocycle which may be optionally substituted with one or more substituents selected from the group consisting of oxo, C<sub>1-8</sub>alkyl, and C(O)OR<sup>11</sup>, and C<sub>1-8</sub>alkyl which may be optionally substituted with one or more substituents selected from the group consisting of -CN and heterocycle, optionally substituted with -C(O)R<sup>11</sup>;

R<sup>7</sup> is C<sub>1-8</sub> alkyl, optionally substituted with one or more substituents selected from the group consisting of hydroxy, halogen, aryl, C<sub>3-6</sub>cycloalkyl and heterocycle; -NH<sub>2</sub>; or heterocycle;

Serial No. 10/070,084  
Docket No. PU3517USW  
Reply to Office Action of December 16, 2004

R<sup>2</sup> is hydrogen, halogen, or C<sub>1-8</sub>alkyl;

R<sup>3</sup> and R<sup>4</sup> are independently hydrogen; hydroxy; heterocycle optionally substituted with one or more substituents selected from the group consisting of oxo, hydroxy, hydroxyC<sub>1-8</sub>alkyl, halogen, C<sub>1-8</sub>alkyl, -OR<sup>11</sup>, -S(O)<sub>2</sub>NR<sup>8</sup>R<sup>9</sup>, and -SR<sup>10</sup>N(R<sup>10</sup>)<sub>2</sub>; or R<sup>3</sup> and R<sup>4</sup> together with the nitrogen atom to which they are attached form a heterocycle which may be optionally substituted with C<sub>6-14</sub>aryl, which may be optionally substituted with one or more substituents selected from the group consisting of C<sub>1-8</sub>alkyl and -NO<sub>2</sub>; provided that R<sup>3</sup> and R<sup>4</sup> cannot both be hydrogen or hydroxy;

R<sup>8</sup> and R<sup>9</sup> are independently selected from the group consisting of hydrogen, C<sub>3-6</sub>cycloalkyl, C<sub>1-8</sub>alkyl optionally substituted with one or more substituents selected from the group consisting of oxo, heterocycle, CN and C<sub>6-14</sub>aryl optionally substituted with alkoxy, C<sub>1-8</sub>alkylamino, C<sub>1-8</sub>alkylheterocycle, heterocycle, heterocycleC<sub>1-8</sub>alkyl, C<sub>3-6</sub>cycloalkylC<sub>1-8</sub>alkyl, and C<sub>3-6</sub>cycloalkyl;

R<sup>10</sup> is C<sub>1-8</sub>alkyl;

R<sup>11</sup> is C<sub>1-8</sub>alkyl, optionally substituted with one or more substituents selected from the group consisting of hydrogen, C<sub>1-8</sub>alkyl, -S(O)<sub>2</sub>NR<sup>8</sup>R<sup>9</sup>, and heterocycle optionally substituted with one or more substituents selected from the group consisting of oxo, and C<sub>1-8</sub>alkyl;

R<sup>5</sup> is hydrogen, halogen, C<sub>1-8</sub>alkyl, -NO<sub>2</sub>, -NH<sub>2</sub>, C<sub>1-8</sub>alkylamino, CF<sub>3</sub>, or alkoxy; or a pharmaceutically acceptable salt thereof.

Claim 13 (previously presented) A compound of formula (ID) according to claim 12 wherein X is O; R<sup>1</sup> is heterocycle; R<sup>2</sup> and R<sup>3</sup> are hydrogen; R<sup>4</sup> is heterocycle; and R<sup>5</sup> is halogen; or a pharmaceutically acceptable salt thereof.

Claim 14 (previously presented) A compound according to claim 6 wherein X is O.

Claim 15 (canceled)

Claim 16 (canceled)

Claim 17 (canceled)

Claim 18 (currently amended) A compound of formula (III)